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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,596	11/01/2002	Zhihong Ye	040849-0209	2441

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FOLEY AND LARDNER
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WASHINGTON, DC 20007

EXAMINER

GONZALEZ, JULIO C

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 09/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,596

Applicant(s)

YE ET AL.

Examiner

Julio C. Gonzalez

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/01/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the prime mover disclosed in claim 13 and the turbine disclosed in claim 14 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any

required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 8, 15 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, it is disclosed that rectifier and inverter provide “sufficient” power.

What is considered to be “sufficient”? Is there a threshold value? Maximum value? Minimum requirement?

In claim 15, what is meant by the power conditioner being a two stage conditioner?

Is it a two stage since it is made of two components, the rectifier and inverter?

In claim 20, what is meant by having “means for conditioning” generated power?

What is the power being conditioned to?

In order to advance prosecution in the merits, the Prior Art will be applied as best understood by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 7, 13, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al (US 4,967,334) in view of Geis et al (US 5,903,116).

Cook et al discloses a motor/generator 18, a rectifier 30 coupled to the motor/generator 18, a prime mover 12, an inverter 38 coupled to the rectifier 30 and load 14, a DC bus 34 coupling the rectifier 30 and inverter 38 and the DC bus 34 having a capacitor 70 (see figure 1). Moreover, it is disclosed that the rectifier and inverter provide power to the motor/generator and the rectifier and inverter provide power to the load on a different mode (column 2, lines 38-44; column 3, lines 63-68).

However, Cook et al does not disclose that the inverter provides a neutral output.

On the other hand, Geis et al discloses for the purpose of providing a motor/generator with precise control, an inverter, which has a neutral output 68 or N (see figures 3, 4 & column 4, lines 49-51). Moreover, Geis et al discloses an

inverter with four legs having a plurality of switches and diodes 76 being in parallel to the switching devices (see figure 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a power conditioner as disclosed by Cook et al and to have an inverter with a neutral output for the purpose of providing a motor/generator with precise control as disclosed by Geis et al.

6. Claims 2, 3, 5, 8, 9, 14, 15, 17, 18, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al and Geis et al as applied to claims 1 and 16 above, and further in view of Gilbreth et al (US 6,487,096).

The combined power conditioner discloses all of the elements above. However, the combined power conditioner does not disclose explicitly that a power source is coupled to the DC bus.

On the other hand, Gilbreth et al discloses for the purpose of making an efficient turbine by preventing the turbine to run at low temperatures, a bi-directional DC bus (see abstract) having a battery 170 coupled to the DC bus (see figure 7), a turbine 206 coupled to the generator 208 (see figure 8), a three leg rectifier 212 coupled to a four leg inverter 214.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined power conditioner as disclosed above and to use a bi-directional DC bus for the purpose of making an efficient turbine by preventing the turbine to run at low temperatures as disclosed by Gilbreth et al.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al, Geis et al and Gilbreth et al as applied to claims 1 and 3 above, and further in view of Lakey et al (US 4,883,973).

The combined power conditioner discloses all of the elements above. However, the combined power conditioner does not disclose explicitly that a power source is recharged by the rectifier or inverter.

On the other hand, Lakey et al discloses for the purpose of optimizing the efficiency of an electrical machine at a desired output level that an electrical is run in different modes and in one mode the battery charged by the bridge rectifier (see claim 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined power conditioner as disclosed above and to charge a battery using a rectifier for the purpose of optimizing the

efficiency of an electrical machine at a desired output level as disclosed by Lakey et al.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al, Geis et al and Gilbreth et al as applied to claim 5 above, and further in view of Hofstetter et al (US 6,774,608).

The combined power conditioner discloses all of the elements above. However, the combined power conditioner does not disclose explicitly that the rectifier has a plurality of switches in parallel to diodes.

On the other hand, Hofstetter discloses for the purpose of providing a power generating device that is robust to disturbances, a rectifier 2 having a plurality of switches with diodes connected in parallel (see figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined power conditioner as disclosed above and to have a rectifier with switches and diodes connected in parallel to the switches for the purpose of providing a power generating device that is robust to disturbances as disclosed by Hofstetter.

9. Claims 10, 12 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al, Geis et al and Gilbreth et al as applied to claims 1 and 21 above, and further in view of Stanton et al (US 4,179,729).

The combined power conditioner discloses all of the elements above. However, the combined power conditioner does not disclose that the power factor is adjustable and that the power factor is zero.

On the other hand, Stanton et al discloses for the purpose of improving the power conversion system for converting the electrical power at different frequencies that it is known in the art to use a zero power factor (see figure 11A, 11B) and that the power factor is adjustable (column 8, lines 59-62).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined power conditioner as disclosed above and to have a zero power factor for the purpose of improving the power conversion system for converting the electrical power at different frequencies as disclosed by Stanton et al.

10. Claims 11, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al, Geis et al and Gilbreth et al as applied to claims 1, 16 and 21 above.

The combined power conditioner discloses all of the elements above. However, the combined power conditioner does not disclose that the power factor is greater than 0.95.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a power factor of 0.95, since it has been held that discovering the optimum value of result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio C. Gonzalez whose telephone number is 571-272-2024. The examiner can normally be reached on M-F (8AM-5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jcg


JOSEPH WAKS
PRIMARY EXAMINER

August 31, 2004